REMARKS

By this amendment, claims 1-7 are amended. Currently, claims 1-39 are pending in the application, of which claims 1, 7, 11, 21, 25 and 32 are independent.

Applicant respectfully submits that the above amendments do not add new matter to the application and are fully supported by the specification. In view of the above Amendments and the following Remarks, Applicant respectfully requests reconsideration and withdrawal of the objections and rejections for the reasons discussed below.

Allowed/Allowable Claims

Applicant appreciates the indication that claims 11-20 are allowed and claims 3-5, 10, 23, 24, 27, 30, 31, 34, 36 and 39 contain allowable subject matter. While Applicant agrees these claims are patentable over the cited references, Applicant does not agree that patentability resides in each feature exactly as expressed in the claims, nor that each feature is required for patentability of each claim.

Rejection of Claims under 35 U.S.C. §103

Claims 1, 2, 6-9, 21 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 5,085,973 issued to Shimizu, et al. ("Shimizu") in view of U. S. Patent No. 5,754,263 issued to Akiyama, et al. ("Akiyama") and further in view of U. S. Patent No. 5,847,793 issued to Itoh ("Itoh"). Applicant respectfully traverses this rejection for at least the following reasons.

With respect to claims 1, 2 and 6-9, independent claim 1 recites:

> "1. A panel for a liquid crystal display, comprising:
> an insulating substrate;
> a transparent electrode formed on the insulating substrate;
> a black matrix formed on the transparent electrode; and
> a protrusion formed on the black matrix."

In this regard, the Examiner stated "Shimizu et al. disclose ... in Fig. 1, black matrix 2b is located on transparent electrode 2c ..." (Office Action, page 2). The Examiner admitted "Shimizu et al. fail to disclose transparent electrode on the insulating substrate and the black matrix on transparent electrode" (Office Action, page 2).

Regarding this missing feature, the Examiner stated "Akiyam et al. disclose ... in Fig. 5, transparent electrodes 63a are located in glass substrate 62a. Furthermore, Itoh discloses ... in Fig. 3 black matrix 25, transparent electrode [23] and substrate 21 are disclosed on the required manner" (Office Action, pages 2-3).

Based on these three references, the Examiner asserted that it would have been obvious to include the required transparent electrode/insulating substrate and the black matrix/transparent electrode relationship in Shimizu et al. as taught by Akiyama et al. and Itoh respectively. This assertion is respectfully disagreed with.

First, none of the cited references disclose or suggest "a protrusion formed on the black matrix", as recited in claim 1, of which an example is shown in Fig. 2 of the present application. In Fig. 2, the protrusion 250 is formed on the black matrix 230. Also, the black matrix 230 is formed on the transparent electrode 220, and the transparent electrode 229 is formed on the substrate 200.

In this regard, Shimizu discloses, in Fig. 1, that the substrate 1 is formed on the black matrix 2b in accordance with the Examiner's logic. Akiyama shows an electrode 63a formed on the substrate 62a, but does not disclose or suggest any black matrix or protrusion. Fig. 3 of Itoh shows the black matrix 25 formed between the transparent electrodes 23, but does not show any protrusion formed on the black matrix 25.

Thus, none of the cited references disclose or suggest the claimed feature of "a protrusion formed on the black matrix". This is further evidenced by the fact that the Examiner was not able to point out which portion of the cited references discloses or suggests this claimed feature.

Second, there is no motivation or suggestion for the asserted combination or modification of the references. In the Office Action, the Examiner took the position that, in Shimizu, the black matrix 2b is formed on the transparent electrode 2c. This means the substrate 1 is formed on the black matrix 2b according to the Examiner's logic.

It would be impossible to replace the substrate 1 with a protrusion. Thus, it is submitted that (a) Shimizu teaches away from replacing the substrate 1 with a protrusion, and (b) the cited references do not provide any motivation or suggestion for the asserted combination or modification of the references.

For these reasons, it is submitted that claim 1 is patentable over the cited references. Claims 2 and 6 are dependent from claim 1 and hence would be also patentable at least for the same reason.

With respect to claims 7-9, independent claim 7 recites:

> "7. A method for manufacturing a panel for a liquid crystal display, comprising the steps of:
> forming a transparent electrode on a substrate;

forming a black matrix layer on the transparent electrode;

depositing a photosensitive material on the black matrix layer to form a photosensitive layer;

patterning the photosensitive layer to mask the black matrix layer and to form a protrusion; and

etching the black matrix layer using the patterned photosensitive layer and the protrusion as mask."

Thus, according to claim 7, a protrusion is formed on the black matrix layer. As mentioned above, none of the cited references disclose or suggest this claimed feature. Also, the cited references do not provide any motivation or suggestion for the asserted combination of the references.

Accordingly, it is submitted that claim 7 is patentable over the cited references. Claims 8 and 9 are dependent from claim 7 and hence would be also patentable at least for the same reasons.

With respect to claims 21 and 22, independent claim 21 recites:

"21. A liquid crystal display, comprising:

a first insulating substrate;

a transparent electrode formed on said first insulating substrate;

a light-blocking layer formed on said transparent electrode and made of metal; and

a protrusion portion made of an organic layer and aligned with the light-blocking layer."

An example of this claimed feature is shown in Fig. 2, in which the black matrix 230, which is "made of a conductor such as chrome" (Office Action, page 9, lines 15-16) and formed on the transparent electrode 220. Also, the protrusion 250 is formed from a photosensitive layer and aligned with the black matrix 230.

In this regard, none of the cited references discloses or suggests "a protrusion portion made of an organic layer and aligned with the light-blocking layer". This is further evidenced by the fact that the Examiner was not able to point out which portion of the cited references discloses or suggests this claimed feature.

Thus, it is submitted that claim 21 is patentably distinct over the cited references. Claim 22 is dependent from claim 21 and hence would be also patentable at least for the same reason.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 2, 6-9, 21 and 22.

Claims 25, 26, 28, 29, 32, 33, 35, 37 and 38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shimizu in view of Itoh, further in view of U. S. Patent No. 5,784,133 issued to Kim, et al. ("Kim") and further in view of U. S. Patent No. 6,433,852 issued to Sonoda, et al. ("Sonoda"). This rejection is respectfully disagreed with.

In the Office Action, the Examiner stated that Shimizu discloses "black matrix 2b located on transparent electrode 2c" (Office Action, page 3). The Examiner admitted that "Shimizu et al. fail to disclose the required, black matrix/substrate, black matrix/color filter and the protrusion/color filter configurations." (Office Action, page 3)

Regarding these missing features, the Examiner stated "Itoh et al. disclose ... in Fig. 3 black matrix 25, transparent electrode [23] and substrate 21 are disclosed [in] the required manner. Furthermore, Kim et al. disclose ... in Figs. 5A and 5B, black matrix

layer 45 is formed on the plate containing color filter. Finally, Sonoda et al. disclose ... in Fig. 2, protrusion SP1 is formed on color filter." (Office Action, page 3).

Based on these four pieces of prior art, the Examiner asserted that it would have been obvious to include the required black matrix/substrate, black matrix/color filter and protrusion/color filter configurations in Shimizu et al. as taught by Kim et al. and Sonoda et al. (Office Action, page 4). This assertion is respectfully disagreed with.

With respect to claims 25, 26, 28 and 29, independent claim 25 recites:

> "25. A liquid crystal display (LCD) device, comprising:
> a first substrate;
> a color filter formed on the first substrate;
> a black matrix formed on the first substrate and surrounding a pixel region; and
> a protrusion formed on the color filter within a pixel region,
> wherein the black matrix and the protrusion are formed of the same material."

Thus, according to claim 25, a black matrix is formed surrounding a pixel region and the protrusion is formed within the pixel region surrounded by the black matrix. An example of this claimed feature is shown in Fig. 1 of the present application, in which the black matrix formed on the substrate is surrounding a pixel region and the protrusion 230 is formed on the color filter 210 within the pixel region.

First, none of the cited references disclose or suggest the claimed protrusion formed within a pixel region surrounded by the black matrix and formed of the same material with the black matrix.

Specifically speaking, in Fig. 1 of Shimida, no protrusion is formed within a pixel region surrounded by the black matrix 2b. In Fig. 3 of Itoh, no protrusion is formed within

a pixel region surrounded by the black matrix 25. Figs. 5A and 5B of Kim do not show a protrusion formed within a pixel region surrounded by the black matrix 45 and formed of the same material with the black matrix 45. In Fig. 2 of Sonoda, the protrusion SP1 is formed on the black matrix BM and there is no other protrusion formed within a pixel region surrounded by the black matrix BM and formed of the same material with the black matrix BM.

Thus, none of the cited references disclose or suggest the claimed protrusion formed within a pixel region surrounded by the black matrix and formed of the same material with the black matrix.

Second, there is no motivation or suggestion for the asserted combination or modification of the cited references. The Examiner stated that Shimizu discloses black matrix 2b located on transparent electrode 2c. Then, the substrate 1 is formed on the black matrix 2b, according to the Examiner's logic. As well known, it is not only impractical but also pointless to remove the substrate 1 and form a protrusion within a pixel region surrounded by the black matrix 2b. Thus, Shimizu teaches away from the asserted combination of the cited references.

For these reasons, it is submitted that claim 25 is patentably distinct from the asserted combination of the cited references. Claims 26, 28 and 29 are dependent from claim 25 and hence would be also patentable at least for the same reasons.

With respect to claims 32, 33, 35, 37 and 38, independent claim 32 recites:

> "32. A method for manufacturing a liquid crystal display (LCD) device, the method comprising steps of:
> defining portions of a substrate corresponding to a pixel region and a protrusion region arranged within the pixel region;

forming a color filter layer on a substrate;
forming a black matrix layer on the color filter layer;
and
etching the black matrix layer to form a protrusion on
the protrusion region."

According to claim 32, the protrusion is formed on the protrusion region which is arranged within the pixel region. As mentioned above, none of the cited references disclose or suggest this claimed feature. Also, there is no motivation or suggestion for the asserted combination or modification of the cited references. Thus, it is submitted that claim 32 is patentably distinct over the cited references. Claims 33, 35, 37 and 38 would be also patentable at least for the same reason.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of claims 25, 26, 28, 29, 32, 33, 35, 37 and 38.

Other Matters

In this response, claims 1-7 are amended solely for the purpose of clarification. For example, independent claim 1 used to recite "A *substrate* for ..., comprising an insulating *substrate*". Claim 1 did not clearly define the difference between the substrate and the insulating substrate. To clarify this, claim 1 is amended to replace "substrate" in the preamble with --panel--. Claims 2-6 are amended to be consistent with the amendment made to claim 1. Similarly, independent claim 7 is amended to replace the "substrate" in the preamble with --panel--.

These amendments are not made for the purpose of avoiding prior art or narrowing the claimed invention, and no change in claim scope is intended. Therefore, Applicant does not intend to relinquish any subject matter by these amendments.

Conclusion

Applicant believes that a full and complete response has been made to the Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully Submitted,

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